

Surgical heart treatment in horses: can it be done?

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Surgical intervention for cardiac disease is rarely needed. Transvenous pacemaker implantation for treatment of symptomatic bradycardia can be performed through a cephalic vein approach on the standing or anesthetized horse. One or more pacemaker leads are inserted and fixated in the right heart under ultrasound and electrographic guidance. The cephalic vein is ligated and the pacemaker implanted in a pocket between the lateral pectoral groove and the manubrium (1). Surgical approach of the common carotid artery maybe needed for systemic catheterisation or for interventional cardiology such as occluder implantation (2). A surgical exposure not only allows to reduce post-procedural bleeding by closure of the puncture site, a proximal approach also facilitates catheter insertion close to the heart when catheter length (often 85-110cm) is limiting (e.g. for left atrial or pulmonary vein catheterisation). Although no reports are available in literature, ligation of a patent ductus arteriosus might be feasible in foals through a left lateral thoracotomy. The deep location of the ductus and its friable nature would certainly be a challenge. An invasive (thoracotomy) approach to catheterise the coronary vessels has also been described under experimental conditions. Open heart surgery is very unlikely to be successful. The large size (thickness) of the equine ventricle would be a high risk for fatal fibrillation after cardioplegia and the short distance between aortic valve and brachiocephalic trunk would not allow cannulation to return oxygenated blood from a heart-lung machine. Returning blood through left atrial or carotid artery would be an additional challenge.

- 1 **van Loon G.**, Fonteyne W., Rottiers H., Tavernier R., Jordaens L., D'Hont L., Colpaert R., De Clercq T. & Deprez P. (2001). Dual chamber pacemaker implantation via the cephalic vein in healthy equids. *J Vet Intern Med* 15, 564-571
- 2 **van Loon G.**, Verheyen T., Decloedt A., Delesalle C., Schauvliege S., De Wolf D. Use of a transcatheter occlusion device in a 9-year old Friesian gelding with aortopulmonary fistula. *44th European Veterinary Conference Voorjaarsdagen*, April 27-29 2011, Amsterdam, The Netherlands